



AgTrends update

April 2019

At a glance

Total value of Queensland's primary industries

In April 2019, the total value of Queensland's primary industry commodities for 2018–19, comprising gross value of production (GVP) at the farm gate and first-stage processing, was forecast to be \$17.59 billion. This forecast is 5% less than the October 2018 estimate of the Department of Agriculture and Fisheries (DAF), and 5% less than the average for the past 5 years.

GVP at the farm gate

In April 2019, the 2018–19 GVP of Queensland's primary industry commodities at the farm gate was forecast to be nearly \$13.89 billion. This forecast is 5% less than DAF's initial estimate for 2018–19 and 5% less than the average for the past 5 years.

Forecasts that have been revised **up** by more than 10% from previous forecasts for 2018–19 are those for:

- molluscs (61%)
- cotton (22%)
- pumpkin (21%)
- capsicums (20%)
- sheep and lambs (19%)
- zucchini and button squash (12%)
- beans (11%).



Forecasts that have been revised **down** by more than 10% from previous forecasts for 2018–19 are those for:

- mung beans (–76%)
- sunflowers (–55%)
- peanuts (–50%)
- grain sorghum (–39%)
- soybeans (–28%)
- potatoes (–23%)
- maize (–20%)
- watermelons (–16%)
- pigs (–16%)
- barley (–15%)
- wheat (–13%)
- chickpeas (–13%)
- onions (–12%)
- wool (–11%)
- apples (–11%)
- carrots (–11%)
- lettuce (–11%).

First-stage processing

The value of first-stage processing (or value-added production) for 2018–19 is forecast to be \$3.7 billion.

Climate outlook for April to June 2019

For most of Queensland, the probability of exceeding median rainfall for the next three months (April to June 2019) is currently moderate or low, with most of Cape York Peninsula expected to be drier than average (Figure 1).

The seasonal outlook is based on analysis of key climate drivers that influence Australia. The Bureau of Meteorology recently upgraded their El Niño – Southern Oscillation outlook from El Niño watch to El Niño alert, with the chance of an El Niño forming in 2019 at around 70%, triple the normal likelihood. While signs of El Niño development in the atmosphere are less clear, sea surface temperatures and water temperatures at depth have shown warming signs indicative of El Niño development. Climate model outlooks suggest further warming is likely, with most models indicating a transition to El Niño is likely. El Niño typically brings drier than average conditions for eastern Australia during winter and spring (Bureau of Meteorology, 2019).

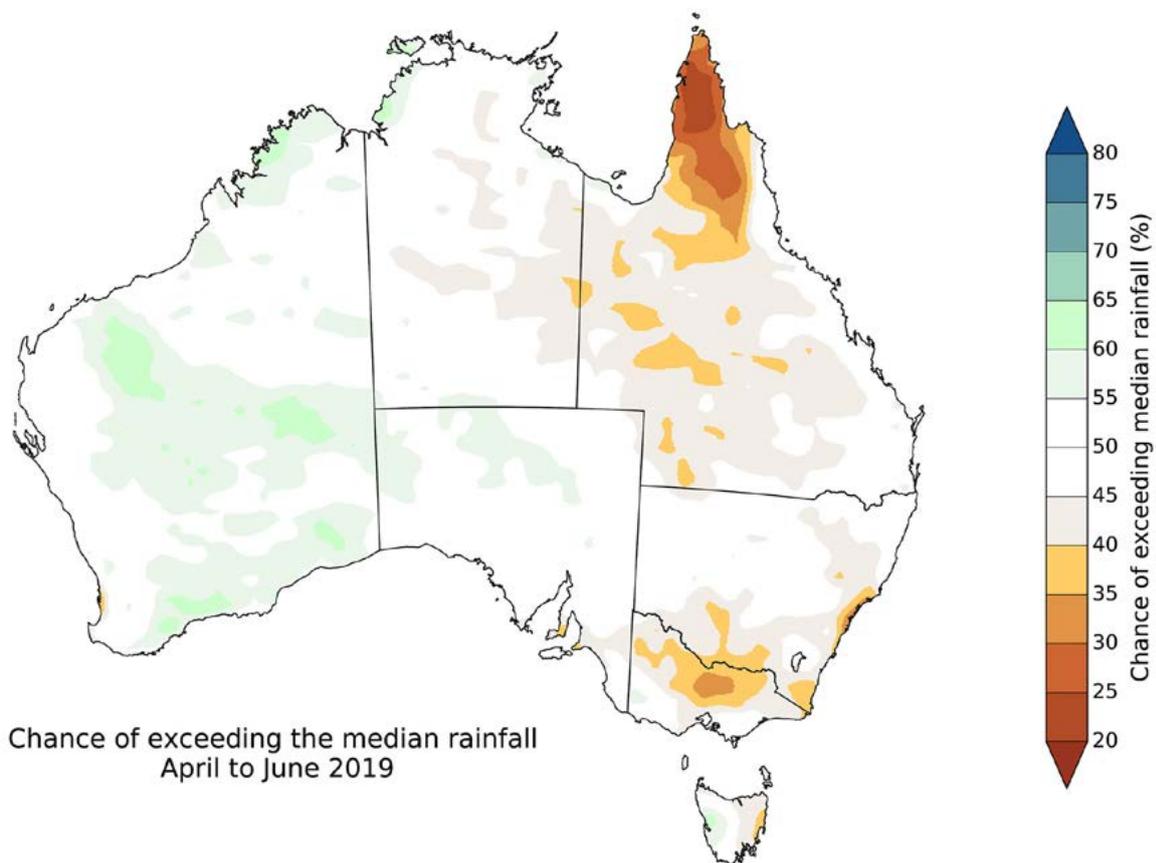


Figure 1 Chance of exceeding the median rainfall for April to June 2019
Source: Bureau of Meteorology, 14 March 2019.

As of 25 March 2019, 58.1% of Queensland was officially drought-declared (Figure 2).

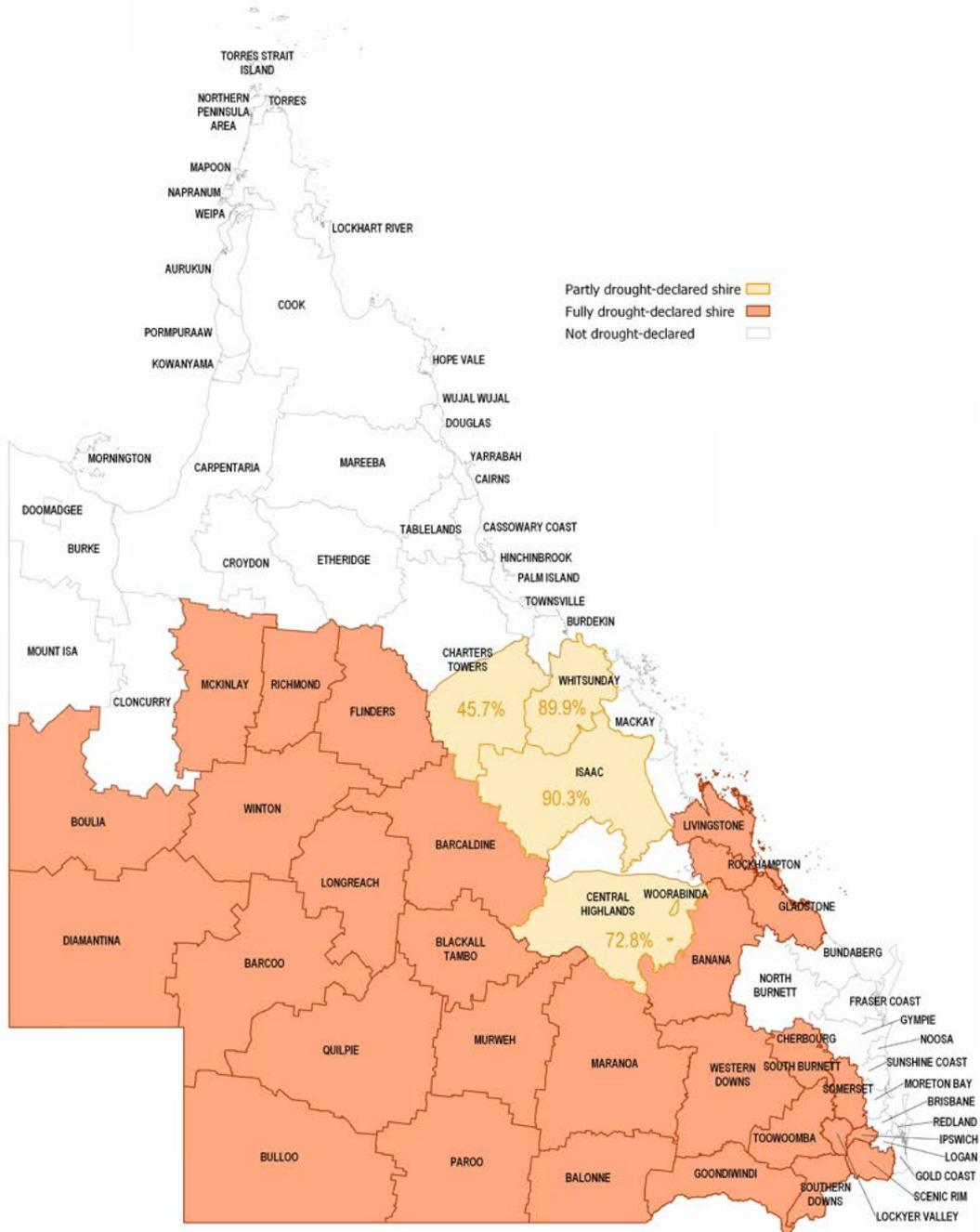


Figure 2 Drought-affected areas in Queensland, March 2019

Source: The Long Paddock, <www.longpaddock.qld.gov.au>.

Primary industries estimates and forecasts

The GVP, first-stage processing and total primary industries estimates and forecasts are provided in Table 1.

Table 1 GVP, first-stage processing and total primary industries estimates and forecasts 2016–17 to 2018–19, and average for the past 5 years

	2016–17 estimate ^b (\$m)	2017–18 estimate ^c (\$m)	2018–19 forecast, October 2018 ^d (\$m)	2018–19 forecast, April 2019 ^d (\$m)	Change in forecast October 2018 to April 2019 (%)	Average for past 5 years (\$m)	Change over 5 years to 2018–19 (%)
Commodity GVP^a							
Livestock							
Livestock disposals							
Cattle and calves	5 731	5 379	5 052	4 665	-8	5 187	-10
Poultry	650	640	605	570	-6	592	-4
Pigs	293	232	257	216	-16	275	-22
Other livestock	46	41	40	40	0	43	-8
Sheep and lambs	9	11	14	17	19	41	-59
Total livestock disposals	6 729	6 303	5 968	5 508	-8	6 140	-10
Livestock products							
Eggs	234	237	245	228	-7	214	6
Milk (all purpose)	251	225	201	201	0	236	-15
Wool	76	75	96	85	-11	71	20
Total livestock products^e	561	537	542	514	-5	521	-1
Total livestock	7 290	6 840	6 510	6 022	-8	6 661	-10
Horticulture							
Fruit and nuts							
Bananas	572	580	574	574	0	568	1
Other fruit and nuts	264	272	286	285	0	248	15
Avocados	225	226	248	267	8	183	46
Strawberries	144	160	148	137	-7	171	-20
Mandarins	107	107	143	143	0	94	52
Macadamias	140	126	136	141	4	103	37
Mangoes	96	113	113	113	0	84	35
Apples	90	93	105	93	-11	80	16
Table grapes	53	65	84	84	0	55	54
Pineapples	70	70	70	65	-7	67	-4
Total fruit and nuts	1 761	1 812	1 907	1 902	0	1 654	15
Vegetables							
Tomatoes	250	298	289	280	-3	281	3
Other vegetables	220	231	243	243	0	221	10
Capsicums and chillies	132	141	140	168	20	145	16
Beans	72	77	75	83	11	79	5

continued

Table 1 continued

	2016–17 estimate ^b (\$m)	2017–18 estimate ^c (\$m)	2018–19 forecast, October 2018 ^d (\$m)	2018–19 forecast, April 2019 ^d (\$m)	Change in forecast October 2018 to April 2019 (%)	Average for past 5 years (\$m)	Change over 5 years to 2018–19 (%)
Commodity GVP^a							
Vegetables continued							
Mushrooms	70	70	70	63	-10	69	-8
Melons (rock and cantaloupe)	50	59	66	66	0	48	36
Sweetpotatoes	64	64	64	64	0	59	9
Lettuce	56	56	56	50	-11	55	-9
Sweet corn	41	44	56	55	-2	41	33
Potatoes	52	52	52	40	-23	55	-27
Zucchini and button squash	39	41	42	47	12	43	10
Melons (watermelon)	31	37	38	32	-16	34	-6
Pumpkin	30	32	33	40	21	29	37
Carrots	27	27	27	24	-11	24	0
Onions	26	26	26	23	-12	26	-13
Total vegetables	1 160	1 255	1 277	1 278	0	1 209	6
Total fruit and nuts and vegetables	2 921	3 067	3 184	3 180	0	2 863	11
Lifestyle horticulture production							
Nurseries ^k	902	907	921	921	0	891	3
Turf ^k	180	327	327	327	0	196	66
Cut flowers ^k	161	161	161	161	0	155	4
Total lifestyle horticulture production	1 243	1 395	1 409	1 409	0	1 242	13
Total horticulture	4 164	4 462	4 593	4 589	0	4 106	12
Other field crops							
Sugarcane ^f	1 527	1 125	1 036	1 087	5	1 253	-13
Cotton (raw) ^g	622	884	461	564	22	611	-8
Other crops ^c	81	134	151	52	-65	79	-34
Total other crops	2 230	2 143	1 648	1 703	3	1 942	-12
Cereal grains							
Grain sorghum	139	276	552	334	-39	295	13
Wheat	361	282	214	187	-13	339	-45
Other cereal grains	247	188	187	135	-27	189	-29
Chickpeas	744	406	156	136	-13	371	-63
Maize	45	64	89	71	-20	54	32
Barley	102	34	41	35	-15	73	-52
Total cereal grains	1 638	1 250	1 239	898	-27	1 282	-30
Total crops	8 032	7 855	7 479	7 191	-4	7 330	-21
Total agriculture	15 322	14 695	13 989	13 213	-6	13 991	-16

continued

Table 1 continued

	2016–17 estimate ^b (\$m)	2017–18 estimate ^c (\$m)	2018–19 forecast, October 2018 ^d (\$m)	2018–19 forecast, April 2019 ^d (\$m)	Change in forecast October 2018 to April 2019 (%)	Average for past 5 years (\$m)	Change over 5 years to 2018–19 (%)
Commodity GVP^a							
Fisheries^{e, h}							
Commercial fishing							
Crustaceans	80	107	107	112	4	106	6
Finfish	64	67	67	63	-6	65	-3
Molluscs	3.6	4	4	6	61	4	37
Total commercial fishing	148	178	178	181	2	175	3
Recreational fishing	94	94	94	94	0	90	5
Aquaculture	92	105	111	120	8	102	17
Total fisheries	334	377	383	395	3	367	8
Forestry and logging^{e, i}	260	270	279	279	0	227	23
Total primary industries (farm gate)	15 916	15 342	14 651	13 887	-5	14 584	0
First-stage processing value added^f							
Meat processing ^c	2 581	2 418	2 289	2 113	-8	2 355	-10
Sugar processing ^c	860	635	544	553	2	663	-17
Log sawmilling, timber dressing, and plywood and veneer manufacturing ^c	423	435	472	472	0	404	17
Fruit and vegetables processing ^c	246	258	268	267	0	241	11
Milk and cream processing ^c	132	119	106	106	0	124	-15
Flour mill and feed processing ^c	127	97	96	70	-27	99	-30
Seafood processing ^c	50	57	58	59	3	55	8
Cotton ginning ^c	71	101	53	64	22	70	-8
Total primary industries (first-stage processing)	4 490	4 118	3 885	3 704	-5	4 011	-3
Total primary industries	20 406	19 460	18 536	17 591	-5	18 596	0

a GVP (gross value of production) is defined as the gross value of commodities produced. It is a measure of economic output. In this publication, GVP relates to the output of primary industry commercial operations only. The GVP is the value of recorded production at wholesale prices realised in the marketplace (e.g. cattle sold at saleyards, sugarcane at the mill door, fruit and vegetables at the wholesale market). It is derived by multiplying the output from each primary industry by the average wholesale price paid to producers.

b ABS final estimates for 2016–17 unless otherwise indicated.

c ABS final estimates for 2017–18 unless otherwise indicated.

d DAF forecasts.

e Excludes minor commodities such as honey, beeswax and mohair.

f Gross value of sugarcane at the mill door.

g Includes value of cottonseed and lint.

h Includes catches from both Commonwealth-managed fisheries (including Torres Strait, Gulf of Carpentaria and East Coast Tuna fisheries) and state-managed fisheries.

i Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) estimates.

j See page 21 for the definition of value added. The forecasts for the value of first-stage processing in 2009–10 and beyond should not be compared with the previous years due to the change in value-added ratios.

k The value of the lifestyle horticulture sector has been calculated on a gross-turnover basis rather than a value-added basis and therefore will contain some double counting.

Primary industry forecasts revised since October 2018

Livestock

Livestock disposals

Beef

Forecast

The GVP for beef for 2018–19 is forecast to be \$4665 million, 8% lower than DAF's initial forecast for 2018–19 and 10% lower than the average for the past 5 years.

Discussion

Since February 2019, the beef industry in north-western Queensland has been adversely affected by severe flooding, while drought conditions have continued for much of the rest of the state. Current estimates indicate losses between 350 000 and 500 000 head from the flooding, but the full impact will probably not be known for months. The cattle losses will impact negatively on the live export market and the cattle available for slaughter in that region.

In the short run, while many northern producers return to herd rebuilding, saleyard prices in the southern parts of the state for drought-affected and lesser quality cattle are collapsing. This is because severe drought conditions are forcing many producers to destock or significantly reduce stock numbers. Higher feed-grain prices and near-capacity feedlots have also presented beef producers with very challenging decisions.

However, on a positive note, the flooding in the north-west should lead to growth in pasture in the region. This could allow those farmers to take drought-affected stock on agistment once fencing, watering points and other infrastructure are restored.

Poultry

Forecast

The GVP for poultry for 2018–19 is forecast to be \$570 million, 6% lower than DAF's initial forecast for 2018–19 and 4% lower than the average for the past 5 years.

Discussion

The GVP for poultry for 2018–19 is expected to increase by 2% from the previous financial year, reflecting a return to stability in production following the closure of the Baiada processing facility in January 2018.

At the national level, GVP is forecast to be relatively unchanged from the previous financial year. A higher number of slaughterings is expected to be offset by lower average slaughter weights. Since the poultry meat industry is significantly impacted by high grain prices, higher domestic feed costs are expected to lead to earlier harvesting of chickens because feed conversion becomes less efficient as animals approach slaughter age.

Although chicken meat prices have been rising since 2016–17 due to high prices for domestic feed grains, demand for chicken meat is expected to remain strong because of relatively favourable retail prices compared with those for beef, pig meat and lamb.

Pigs

Forecast

The GVP for pigs for 2018–19 is forecast to be \$216 million, 16% lower than DAF's initial forecast for 2018–19 and 22% lower than the average for the past 5 years.

Discussion

The pig production forecast has been revised downward to reflect recently reviewed estimates by ABARES for national pig production (decrease by 5%) and value (decrease by 17%). Australian sow numbers are expected to fall in 2018–19 due to higher slaughterings. This is in response to low pig meat prices and rising feed costs.

Since 2015–16, the increase in national GVP for pigs has slowed, while numbers of pig slaughterings have been going up (with the exception of 2018–19). Increasing competition from alternative meat industries and imported processed pork have resulted in decreasing over-the-hook prices for pork meat.

A similar trend is occurring in the Queensland pig industry. In particular, the combination of high feed prices and low pig prices reduced the profitability of Queensland pig producers. Intensive livestock industries are among the largest consumers of domestic feed grains, and in 2017–18 prices of Australian feed grains rose significantly because of lower Australian production and biosecurity requirements that restrict imports of grain, processed plant-based stockfeed and supplements.

Sheep and lambs

Forecast

The GVP for sheep and lambs for 2018–19 is forecast to be \$17 million, 19% higher than DAF's initial forecast for 2018–19 but 59% lower than the average for the past 5 years.

Discussion

At the end of January, Queensland sheep and lamb slaughterings stood, respectively, at 149% and 67% of DAF's 2018–19 forecasts, suggesting accelerated disposals of adults due to ongoing drought. Although this pace is unlikely to continue, overall sheep and lamb sales are expected to exceed the earlier forecast. With prices holding up well, sales values are expected to reach \$17 million.

Livestock products

Eggs

Forecast

The GVP for eggs for 2018–19 is forecast to be \$228 million, 7% lower than DAF's initial forecast for 2018–19 but 6% higher than the average for the past 5 years.

Discussion

The egg production forecast has been revised marginally downward, reflecting recently revised estimates by ABARES for national egg production. According to Australian Eggs Limited, the Queensland egg industry is still being affected by a strong egg supply nationally, and there is a consequent impact on profitability. This has been exacerbated by the drought in eastern states and very high feed prices, prolonged by the poor yield from the summer sorghum crop.

The transition from cage to cage-free supply has accelerated with major supermarket chains looking to manage a transition to cage-free from as early as 2023. Export volumes remain limited but with some growth potential in key markets such as Singapore and China.

Wool

Forecast

The GVP for wool for 2018–19 is forecast to be \$85 million, 11% lower than DAF's initial forecast for 2018–19 but 20% higher than the average for the past 5 years.

Discussion

Ongoing drought conditions led to Australian Wool Innovation dropping the Queensland clip forecast for the financial year to 7100 tonnes, while the March commodities report from ABARES lowered the forecast Eastern Market Indicator value to 1764. These changes resulted in the reduction in the GVP forecast for Queensland from \$96 million to \$85 million.

Crops

Horticulture crops

Macadamias

Forecast

The GVP for macadamias for 2018–19 is forecast to be \$141 million, 4% higher than DAF's initial forecast for 2018–19 and 37% higher than the average for the past 5 years.

Discussion

The 2018 macadamia crop was marginally higher than forecast. The trees have recovered well from Cyclone Debbie and the harvesting season had minimal interruptions from rain. In addition, improved management practices in areas such as soil health, plus investment in new plantings coming into bearing, should increase yields. Although it is early in the season, growers are currently reporting good flowering and nut set. Demand for Australian kernel remains strong.

Strawberries

Forecast

The GVP for strawberries for 2018–19 is forecast to be \$137 million, 7% lower than DAF's initial forecast for 2018–19 and 20% lower than the average for the past 5 years.

Discussion

The combination of drought and significantly above-average temperatures in the Granite Belt has reduced the availability and quality of runners. The majority of propagation material comes from the Granite Belt, so this could have an impact on the upcoming planting season and lower yields are possible. The harvest and delivery is due to commence around mid-March.

Apples

Forecast

The GVP for apples for 2018–19 is forecast to be \$93 million, 11% lower than DAF's initial forecast for 2018–19 but 16% higher than the average for the past 5 years.

Discussion

The drought has had a significant impact on the apple crop this year. Recorded rainfall from October to February was about 34% of the average level and temperatures recorded across the growing district have been elevated—January maximums were on average 4 degrees warmer than usual. This has reduced the fruit size and yield of the January–February crop. However, the main varieties that will be picked from now on (Red Delicious, Fuji, Granny Smith and Pink Lady) are all naturally larger than the early varieties (Gala), and temperatures have moderated, so the fruit quality should be better for these.

Avocados

Forecast

The GVP for avocados for 2018–19 is forecast to be \$267 million, 8% higher than DAF's initial forecast for 2018–19 and 46% higher than the average for the past 5 years.

Discussion

Production is expected to be higher than the October 2018 forecast due to a number of new plantations coming into bearing, mostly in North Queensland. Average avocado prices are expected to be slightly lower because of the greater supply of Queensland avocados from March onwards.

Pineapples

Forecast

The GVP for pineapples for 2018–19 is forecast to be \$65 million, 7% lower than DAF's initial forecast for 2018–19 and 4% lower than the average for the past 5 years.

Discussion

The loss in fresh fruit from severe weather has been offset by an earlier than expected flowering of the winter crop; this harvest is now due this financial year rather than the next. The fresh pineapple crop from North Queensland is lower because of flooding and the subsequent heat.

The volume of processing fruit (both bulk grade and juice grade) is significantly down this year. The spring crop of 2018 suffered the most from the drought.

Total vegetables

Forecast

The GVP for total vegetables for 2018–19 is forecast to be \$1.278 billion, about the same as DAF's initial forecast for 2018–19 and 6% higher than the average for the past 5 years.

Discussion

The net result, which indicates very little change in the total GVP forecast since October 2018, masks contrasting results for the Lockyer and Bowen districts. Crops grown in the Lockyer district—such as **potatoes**, **carrots** and **onions**—suffered declines in production due to heat stress, lack of rain and dwindling underground water supplies. However, in the Bowen district, crops such as **capsicums**, **zucchini** and **button squash** have recovered from the cyclone impact from the previous year and have received slightly better prices than expected.

Other field crops

Sugarcane

Forecast

The GVP for sugarcane for 2018–19 is forecast to be \$1.087 billion, 5% higher than DAF's initial forecast for 2018–19 but 13% lower than the average for the past 5 years.

Total revenue from the 2018 Queensland crop, in raw-sugar equivalent, is expected to be \$1.64 billion.

Discussion

A raw-sugar value of \$373 per tonne international polarity scale (IPS) was used to calculate the final estimate for sugarcane GVP.¹ This was \$13 (3.6%) per tonne higher than forecast in October.

¹ Queensland Sugar Limited's harvest pool, 22 February 2019.

The slightly higher price was the main reason for the increase in GVP, in spite of a lower than expected sugarcane harvest. At 30.49 million tonnes, the 2018–19 harvest was 900 000 tonnes lower than that forecast. This was due to long periods of dry, cooler weather during the season, which resulted in very limited crop growth from June 2018 onward.

However, the limited growth enabled sugar to be concentrated within a lower biomass of cane and resulted in a final average commercial cane sugar (CCS) of 14.45 for the 2018–19 season. This was higher than both the 14.0 forecast in October 2018 and the 13.3 achieved in 2017–18, and led to sugar production exceeding that of the previous season by more than 250 000 tonnes.

ABARES notes that world sugar production in 2018–19 is expected to exceed consumption for the second year running. This situation is forecast to reverse in 2019–20, as a current low world price and a mounting issue in India (with mills having difficulty in paying growers) likely to result in reduced plantings and lower production. Despite this, high global sugar stocks are forecast to dampen the expected recovery in world sugar price to approximately 4%.

Cotton

Forecast

The GVP for cotton for 2018–19 is forecast to be \$564 million, 22% higher than DAF's initial forecast for 2018–19 but 8% lower than the average for the past 5 years.

Discussion

Widespread rain across the Darling Downs in late October last year has improved the cotton outlook somewhat, but it is still below the 5-year average.

Other major field crops

Peanuts

Forecast

The GVP for peanuts for 2018–19 is forecast to be \$18 million, 56% lower than DAF's initial forecast for 2018–19 and 14% lower than the average for the past 5 years.

Discussion

The estimated area sown to peanuts has remained unchanged since the last forecast, at 10 000 hectares. The last significant rainfall in the Kingaroy region was in the middle of December 2018, recording between 100 and 150 millimetres. However, as at March, no adequate rainfall has since been received, particularly over the critical grain-filling month of February. This has led to a significant downgrade in yield expectation, by 50%, from 3.5 tonnes per hectare to just 1.75 tonnes per hectare. Irrigated peanuts will likely yield better; however, the current yield forecast reflects both dryland and irrigated peanuts. The price per tonne has remained unchanged, averaging \$1000. The lower yields are forecast to take the GVP commensurately lower.

Soybeans

Forecast

The GVP for soybeans for 2018–19 is forecast to be \$8 million, 28% lower than DAF's initial forecast for 2018–19 and 76% lower than the average for the past 5 years.

Discussion

As for other summer crops, planting conditions for soybeans in spring were overall very dry in southern and central Queensland, hampering planting opportunities. The estimated area sown has fallen 34% from 12 800 hectares to 8500 hectares. Dry conditions continued through the crop-growing phase in summer, suppressing yields below their potential. Expected yields are largely unchanged, averaging around 1.5 tonnes per hectare. The smaller area sown is forecast to take production commensurately

lower than originally forecast, from 18 550 tonnes to 12 500 tonnes. Conversely, the price has increased (approximately in line with United States soybean prices) by around 7% from \$610 to \$650 per tonne. However, the lower production forecast is expected to more than offset the increase in price, taking the GVP proportionately lower.

Sunflowers

Forecast

The GVP for sunflowers for 2018–19 is forecast to be \$9 million, 55% lower than DAF's initial forecast for 2018–19 and 33% lower than the average for the past 5 years.

Discussion

Due to an overall very dry spring in the sunflower-growing regions of central and southern Queensland, the estimated area sown has fallen more than 50%, from 15 000 hectares to just 7000 hectares. Continuing dry conditions over the summer growing phase of the crop have reduced yield expectations by around 12%, from 1.3 tonnes per hectare to around 1.1 tonnes per hectare. The smaller area sown coupled with below-average yields will take production lower (by around 60%) from the initial estimate of 19 500 tonnes to just 8000 tonnes. Conversely, the estimated price has increased by 10%, from \$1000 to \$1100 per tonne. The forecast production shortfall is estimated to far offset the modest price increase, taking the GVP significantly lower.

Summer cereal grains

Grain sorghum

Forecast

The GVP for sorghum for 2018–19 is forecast to be \$334 million, 39% lower than DAF's initial forecast for 2018–19 but 13% higher than the average for the past 5 years.

Discussion

The forecast area sown to sorghum is 381 250 hectares, about the same as that initially forecast. However, due to very dry summer conditions in the planting regions of southern and central Queensland, grain fill through the growth stage of sorghum has been suppressed. Consequently, expected average yield has fallen 16%, from 2.85 tonnes per hectare to 2.4 tonnes per hectare. Expected production is projected to fall commensurately, from around 1 088 000 tonnes to 913 600 tonnes.

Despite the fall in production, the average price per tonne is estimated to have increased 22% from \$300 to \$365 per tonne. However, the lower production forecast is expected to offset the price increase, leading to a lower forecast GVP.

Maize

Forecast

The GVP for maize for 2018–19 is forecast to be \$71 million, 20% lower than DAF's initial forecast for 2018–19 but 32% higher than the average for the past 5 years.

Discussion

The estimated area sown to maize has remained unchanged at around 33 000 hectares. However, there were very dry conditions over planting time in spring and over the growing phase of the crop in summer, in both the central and southern Queensland growing areas. Accordingly, expected yields have fallen about 20%, to average around 4.5 tonnes per hectare. Estimated maize production is therefore forecast to fall commensurately, from around 186 000 tonnes to 150 000 tonnes. The price per tonne has remained largely unchanged at around \$475 per tonne. The lower anticipated production is expected to take the GVP proportionately lower.

Winter cereal grains

Wheat

Forecast

The GVP for wheat for 2018–19 is forecast to be \$187 million, 13% lower than DAF's initial forecast for 2018–19 and 45% lower than the average for the past 5 years.

Discussion

The estimated area sown to wheat was 375 000 hectares for the winter of 2018, 41% below the initial forecast of 638 000 hectares. This was most likely in response to very dry autumn conditions hampering planting opportunities on the Darling Downs in southern Queensland, and in central Queensland. Despite dry growing conditions in the 2018 winter, the yield was 50% above the initial forecast, at around 1.17 tonnes per hectare. However, this yield estimate lies 34% below the 10-year average (2007–08 to 2016–17) of 1.77 tonnes per hectare. The contracted area sown is expected to more than offset increased yields, taking the wheat production forecast 12% lower, from 496 917 tonnes to a revised 437 667 tonnes.

The average wheat price is marginally (1%) lower than previously forecast, at \$428 per tonne. Wheat prices are higher than average in the 2018–19 season, due to a shortage of local supplies, but significant quantities of wheat and barley have been imported from Western Australia to compensate for the local supply shortfall, constraining upward price pressure. This, coupled with the lower production, is forecast to take the GVP proportionately lower.

Barley

Forecast

The GVP for barley for 2018–19 is forecast to be \$35 million, 15% lower than DAF's initial forecast for 2018–19 and 52% lower than the average for the past 5 years.

Discussion

The estimated area sown to barley in winter 2018 was 64 833 hectares, 22% below the initial forecast. As for wheat, this was due to very dry autumn conditions in 2018 hampering planting opportunities. Despite a dry autumn and winter, yields were better than expected, averaging 1.38 tonnes per hectare, an increase of 16% from the initial forecast of 1.19 tonnes per hectare. However, the current yield forecast lies 33% below the 10-year average (2007–08 to 2016–17) of about 2.1 tonnes per hectare. The smaller area sown is expected to more than offset increased yields, lowering forecast production by 9%, from 98 667 tonnes to 89 700 tonnes. About 7000 tonnes came from central Queensland, and all of this went to livestock feedlots.

The price is also estimated to have fallen since the initial forecast, from \$420 to \$390 per tonne (7%). The lower forecast production coupled with the lower price is expected to reduce the GVP commensurately.

Chickpeas

Forecast

The GVP for chickpeas for 2018–19 is forecast to be \$136 million, 13% lower than DAF's initial forecast for 2018–19 and 63% lower than the average for the past 5 years.

Discussion

The estimated area sown to chickpeas is 195 000 hectares for the 2018 winter, 3% above the initial estimate of 190 000 hectares but 60% below the more than 500 000 hectares sown in the 2017 winter. Autumn and winter conditions in 2018 were very dry, hampering plantings. Also, plantings were

negatively influenced by the imposition of a 30% tariff in India, Queensland's major chickpea export market, in January 2018; this significantly lowered price expectations for chickpeas.² Subsequently, this tariff was raised to 40%, and then to 60% on 1 March 2018, prompting some Queensland grain growers to switch to other and more profitable crops such as maize. The Indian pulse tariff is still in place.

Due to dry winter conditions in 2018, the yield estimate has also been revised downwards, by 22%, from 1.12 tonnes per hectare to just 0.87 tonnes per hectare. Reduced yields are forecast to take production significantly (20%) lower than the 213 650 tonnes previously forecast, to just 170 000 tonnes. The current production forecast lies about 70% below the 556 000 tonnes estimated for the 2017 winter.

Despite the Indian pulse tariff, chickpea prices received by Queensland growers remained resilient, up 9% from the previous estimate of \$731 per tonne to \$800 per tonne. This is likely due to a combination of continued relatively strong demand for pulses from the Indian subcontinent, and a shortfall of 600 000 tonnes in domestic pulse production in Pakistan in 2017–18, which has provided an avenue for diverting Queensland chickpeas from India. Further, a steadily devalued Australian dollar over the December and March quarters for 2018–19 has meant that domestic growers receive more dollars on average per tonne of crop exported. However, the forecast lower chickpea production is estimated to more than offset the increase in price, taking the GVP proportionately lower.

Mung beans

Forecast

The GVP for mung beans for 2018–19 is forecast to be \$18 million, 76% less than DAF's initial forecast for 2018–19 and 58% lower than the average for the past 5 years.

Discussion

The majority of the Queensland mung bean crop was planted in southern Queensland in the third week of December; however, as at March 2019, no rain had been received by growers. Little to no crop has been planted in central Queensland, due to drought conditions. Some growers may plant mung beans late, in March, if ample rains (50–75 millimetres) are received. On average, between one-third and one-half of the state's mung bean production is in central Queensland.

In the southern Queensland growing area, days have frequently exceeded 35 degrees Celsius, forcing the crop to abort flowers, which are necessary for mung bean pods to form. As at the beginning of March, those mung beans that are in reasonable shape were beginning to pod. Technically, the crop can re-flower; however, follow-up rains are desperately needed for this to occur. The harvest window for the southern Queensland crop is in March. Dry conditions have also inhibited plant height, which affects yield.

Due to the dry conditions, the estimated area sown is 38% below the 80 000 hectares previously forecast, at 50 000 hectares. Also due to the dry and hot conditions, estimated yields have fallen dramatically, by 70%, from 1 tonne per hectare to just 0.33 tonnes per hectare. The smaller area sown coupled with lower yields is estimated to take the production forecast down about 80%, from 80 000 tonnes to just 15 000 tonnes. The only upside to this season is estimated price, which has increased 26% from the previous estimate of \$1000 per tonne to \$1200 per tonne. However, the much lower production is forecast to more than offset the increase in price, taking the GVP significantly lower.

² Butterworth, K 2018, 'Jordan Anderson, Avonmore, Theodore, plants corns for first time after chickpea tariff announcement', *Queensland Country Life*, Toowoomba, viewed 28 August 2018.

Fisheries

Aquaculture

Forecast

The GVP for aquaculture for 2018–19 is forecast to be \$120 million, 8% higher than DAF's initial forecast for 2018–19 and 17% higher than the average for the past 5 years.

Discussion

Prawn farming remains the largest sector of the Queensland aquaculture industry. This sector experienced a decrease in production in previous seasons due to the outbreak of the white spot virus in farms in South East Queensland. However, the decrease in production due to the virus was less than expected because of the rapid response of the industry following the outbreak. This is indicated by the relatively small decrease in gross value in 2017–18 to \$74 million. Numerous farms in South East Queensland are ramping up production in the wake of the virus, although over reduced areas and at lower production densities. The farmgate value of prawns is expected to approach pre-white spot levels of approximately \$80.0 million in 2018–19.

Barramundi production, the second largest sector, is expected to increase from the previous season. This sector is forecast to achieve a value of \$28.0 million in 2018–19. The freshwater fish sector (primarily silver perch, Murray cod and jade perch) has an estimated value of \$3 million, which is a stable annual figure. The oyster and hatchery sectors are expected to increase slightly on production levels achieved in 2017–18.

The impact of climate variability on irrigated agriculture

Climate variability

To achieve profitable crop yields, farmers need available water at strategic times throughout the year. However, Queensland's agricultural industry is facing a challenge as rainfall patterns appear to be becoming less predictable.

Observed changes include drier catchments, increased chances of low rainfall, and big rains that fall all at once, rather than in a progression of smaller, more useful rains. Together, these factors could make our water storage systems less reliable for irrigated crops.

Water allocations

Each year in March, SunWater announces the water allocations for the forthcoming 'water year', which begins in July. After considering the allocations for the year, farmers will decide what they will grow and how many hectares they will sow.

If there is late rain, water allocations may increase from the figures announced in March, but this will not necessarily lead to a benefit in terms of increased productivity. There are two reasons for this:

- Farmers will not have planned for the increase and so would have already planted according to the lower forecast.
- The increase in available water might be too late in the season to have any impact on yield or productivity before the January–December harvest.

Late changes to water allocations can lead to misconceptions about the agricultural industry's productive use of water. For example, if there is rain in December and the allocation is increased, annual reporting may state that farms had access to 90% of their allocation, but only used 70%.

Options for risk management

Options available to farmers include:

- adopting more water-efficient practices
- reducing the amount of land planted
- changing to different or more drought-tolerant crops
- increasing on-farm water storage
- purchasing more water than is needed in an annual time frame (to provide a buffer)
- using protected cropping to reduce water use and evaporation
- developing full recycling systems to ensure efficient use of water
- installing spray irrigation to improve efficiency of water use on winter and selected summer crops
- trading water (if permitted).

The main options available to governments are:

- encouraging the uptake of water-efficient practices
- increasing water storage in some dams
- building new dams and weirs.

Any additional water storage must allow 30% of all water in a catchment to flow into the sea. In some areas, such as Cape York, a percentage of water allocation must also remain for cultural purposes.

Budgets can constrain government investment in additional water storage. However, these investment decisions need to be assessed against the risk of wider economic loss in agricultural production—to Queensland and Australia—if climate variability prevents farmers from achieving profitable, sustainable production from their land.

Appendix: The economic contribution of agriculture and the food supply chain, Queensland, 2016–17

Queensland’s primary industries play a vital role in the state’s economy. However, the role of this sector extends beyond primary production of agricultural commodities.

Primary industry commodities are used in a range of manufacturing, retail and service industries. By investigating the value of agriculture and the food supply chain, we can better understand the role of primary industries in the state’s economy. Queensland’s food supply chain extends from primary production of agricultural products to food services and a range of manufactured goods that are delivered to consumers.

In this analysis, we estimate the economic contribution (gross value added) and the number of employees in agriculture and the food supply chain. To do this, we define three stages in agriculture and the food supply chain:

- primary production
- manufacturing of food and beverages
- food-related retail and services.

The industry subdivisions are detailed in Table 2.

Table 2 Industry subdivisions in agriculture and the food supply chain

Stage	Industry subdivision (ANZSIC code)
Primary production	Agriculture (A01) Aquaculture (A02) Forestry and logging (A03) Fishing, hunting and trapping (A04) Agriculture, forestry and fishing support services (A05)
Manufacturing of food and beverages	Food product manufacturing (C11) Beverage and tobacco product manufacturing (C12)
Food-related retail and services	Grocery, liquor and tobacco product wholesaling (C36) Food retailing (C41) Cafes, restaurants and takeaway food services (C451)

Source: ABS, *Australian and New Zealand Standard Industrial Classifications (ANZSIC) 2006*, cat. no. 1292.0.

Agriculture product wholesaling (ANZSIC331) has been excluded from estimates of the food supply chain because we have assumed that the majority of value for this group comes from wool wholesaling (ANZSIC3311).

Gross value added

To calculate the economic contribution of agriculture and the food supply chain, we use ‘value added’. This avoids double counting, as intermediate products are excluded. The sum of the value of production inputs and the gross value added in each stage of production and distribution equals the total value of agriculture and the food supply chain:

$$\text{Value of production inputs} + \text{gross value added} = \text{total value of output}$$

That is:

$$\text{Gross value added} = \text{value of output} - \text{value of production inputs}$$

So gross value added is the value of output at basic prices (i.e. without commodity taxes or subsidies) minus the value of production inputs. The concept of value added is used to describe the economic contribution by an industry or sector.

Estimate of the economic contribution of agriculture and the food supply chain, Queensland

The estimates are determined by the availability of data; therefore, the estimates in Table 3, Figure 3 and Figure 4 are for the year 2016–17.

Table 3 Value added and employment in agriculture and the food supply chain

	Primary production	Manufacturing	Retail and services	Total
2016–17 estimates				
Value added (\$b)	10.6	4.6	9.5	24.7
Employment ('000s)	51.6	45.6	186.8	284.1
2015–16 estimates				
Value added (\$b)	9.5	4.9	9.4	23.7
Employment ('000s)	58.8	49.6	196.9	305.3
Percentage change 2015–16 to 2016–17				
Value added (%)	12	-7	1	4
Employment (%)	-12	-8	-5	-7

Source: DAF estimates based on ABS data from *Labour force, Australia, detailed, quarterly, November 2018* (cat. no. 6291.0.55.003), *Australian industry, 2016–17* (cat. no. 8155.0) and *Australian national accounts: state accounts, 2016–17* (cat. no. 5220.0).

Gross value added for agriculture and the food supply chain in Queensland for 2016–17 is estimated to be \$24.7 billion. This makes up about 8% of the state's economic output. Just over 284 000 people were employed in agriculture and the food supply chain in 2016–17, accounting for 12% of all working Queenslanders.

The value of food processing and distribution in Queensland (incorporating manufacturing and retail and services) is estimated to be almost \$14.1 billion for 2016–17. This sector employs around 232 500 people.

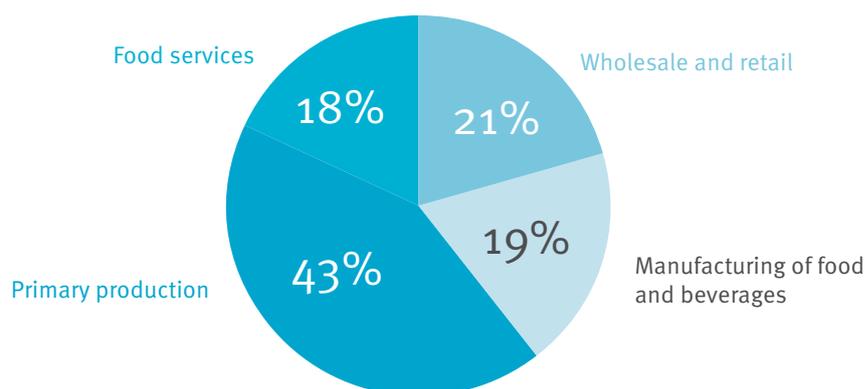


Figure 3 Value added in agriculture and the food supply chain, 2016–17

Source: DAF estimates based on ABS data from *Australian industry, 2016–17* (cat. no. 8155.0) and *Australian national accounts: state accounts, 2016–17* (cat. no. 5220.0).

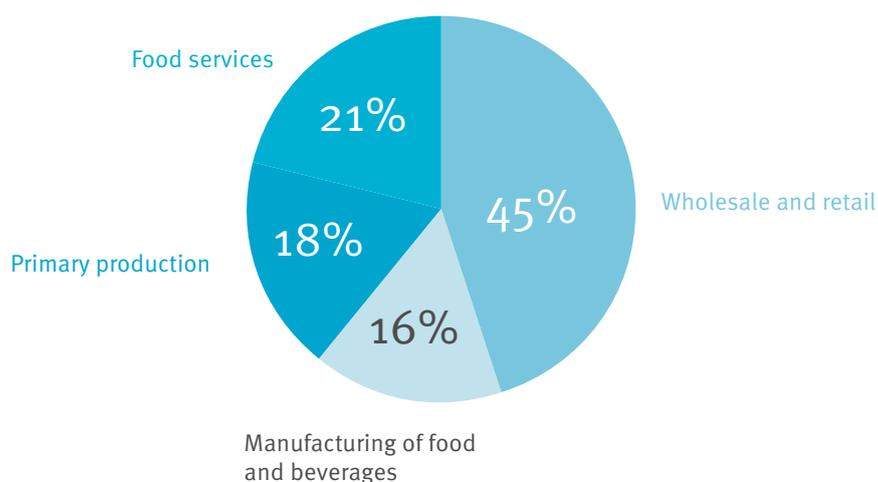


Figure 4 Employment in agriculture and the food supply chain, 2016–17

Source: DAF estimates based on ABS data from *Labour force, Australia, detailed, quarterly, November 2018* (cat. no. 6291.0.55.003).

Estimate of the GVP of Queensland’s primary industries and the food supply chain

GVP is used in *AgTrends* to measure the output for each primary industry commodity. GVP of agricultural commodities is calculated by multiplying the output for each primary industry activity by the average wholesale market price paid to producers:

$$\text{GVP} = \text{output} \times \text{price}$$

This measure describes the production output of a farm, industry or sector.

The estimate for the 2016–17 GVP at the farm gate is \$15.92 billion.

GVP as a percentage contribution to the state’s economic output is not reported because measures of economic output such as gross state product (GSP) are based on value added. Gross value added is preferred when presenting the contribution of an industry or sector to economic output.

The 2016–17 estimates for Queensland’s primary industries (GVP) and the food supply chain (value added) total \$29.98 billion.

Estimates derived with the new method **should not** be directly compared with the estimates derived from the old method (used in *Prospects for Queensland’s primary industries* before 2011). The new method has several advantages:

- Publications recently released by the ABS allow data to be updated annually. Previously data was sourced from numerous publications, four of which have not been updated since 2006–07 and are now discontinued.
- The new method does not require the use of price deflators.
- Updating the data is simple and transparent.
- The presentation of results has been simplified with continued emphasis on the difference between industry value added and GVP.

Table 3 shows industry value added and employee estimates for 2016–17 and 2015–16 based on the new method.

Key assumptions

When calculating these forecasts, DAF follows the convention used by all government forecasting agencies that ‘normal’ seasonal conditions will occur across Queensland throughout the forecast year (2018–19) or that part of the forecast year yet to be completed. DAF’s updates take into account the seasonal conditions that have occurred to date. This sets a benchmark for measuring variations from ‘normal’ as the season unfolds.

The prices of all internationally traded commodities are responsive to changes in the exchange rate of the Australian dollar, relative to the currencies of our trading partners. Prices to primary producers (and therefore gross unit values) decline when the Australian dollar exchange rate increases and vice versa.

Notes

Gross value of commodities produced (gross value of production or GVP) is a measure of economic output. In this publication, GVP relates to the output of primary industry commercial operations only. The GVP is the value of recorded production at wholesale prices realised in the marketplace (e.g. cattle sold at saleyards, sugarcane at the mill door, fruit and vegetables at the wholesale market). It is derived by multiplying the output from each primary industry by the average wholesale price paid to producers. Note that gross values of production are not the measures used to represent sectoral contributions to the gross domestic (or state) product.

Value added is the value of the output produced minus the costs of the intermediate inputs.

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